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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/723,615	11/27/2000	Jack Cheng	GRQ-00100	8414

28960 7590 03/18/2004

HAVERSTOCK & OWENS LLP  
162 NORTH WOLFE ROAD  
SUNNYVALE, CA 94086

EXAMINER
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BUDD, MARK OSBORNE

ART UNIT	PAPER NUMBER
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2834

DATE MAILED: 03/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/723,615

Applicant(s)

CHENG ET AL.

Examiner

Mark Budd

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-46, 49-53 and 132-144 is/are pending in the application.
- 4a) Of the above claim(s) 5-13, 15, 18-46, 49-53 and 132-142 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 14, 16, 17, 143 and 144 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-4 and 143 are rejected under 35 U.S.C. 102(a) as being anticipated by Endo (129), Culp (621), Assard (120), Eusemann (002) or Funakubo (137).

Endo (129) figs. 1 and 3 show second surface (#4, #28), first surface (#2, #22), contact pad (#6, #30), a respective, symmetrical motion is induced in the first surface parallel to the interface. Culp (121) (figs. 8 and 12) and Funakuhu (137) (Figs. 27, 31 and 32) show similar structures. In Assard (120) note the second surface is not illustrated first surface is #52 and the pad is #59 (figs. 4 & 5). In Eusemann (002) figs. 1, 1a show second surface #4, first surface #1 and pad #2.

Regarding claim 143 it is noted that the references do not show nodes and the contact pad must be at an anti-node to garner any movement.

Claim 144 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

This claim is inaccurate or based on an inadequate disclosure. The claim states that "no motion perpendicular to the second surface is imparted to the second surface". However, as noted in applicants own remarks (see latest amendment, pg. 4, second paragraph). Due to poisons effect there will be vertical motion caused by the

longitudinal effect of the piezo member (see also applicant's figs. 2A, 2B). Thus the claimed structure is either inaccurate or based on an inadequate disclosure.

Claims 144 (as understood) is rejected under 35 U.S.C. 102(a) as being anticipated by Culp (621), Assard (120) or Eusemann (002).

These references appear to impart either zero or minimal vertical movement.

Claim 143 is rejected under 35 U.S.C. 102(a) as being anticipated by Funakubo (375), Takagi (268) or Takano (128).

Assuming arguendo, that the anti-nodal limitation not explicitly shown by the above rejection of claim 143 renders those rejections defective the following is noted. Funakubo (375), fig. 2 shows a first surface (#11, #12) a second surface (#25) coupled only at anti-nodes by pads at ends #14. Takagi (268), fig. 3 does not illustrate the second surface but first surface #1 is coupled to it via pads (#3a-d) located at anti-nodes. Takano (328) figs. 6 and 7d show similar structure.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 14, 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Culp (621), Endo (129) or Assard (120) in view of Kamigaito.

As noted Assard teach the friction reduction steps; but they do not explicitly show the further steps of providing an ion-implanted surface. However, Kamigaito teaches bearing efficiency (reduction in frictional coefficient) and wear

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reduced by introducing such a layer. Thus for at least these known benefits it would have been obvious to one of ordinary skill in the art to provide this structure (step to either Assard, Endo, or Culp.

Budd/ds

03/11/04

MARK U. BUDD  
PRIMARY EXAMINER  
ART UNIT 2834

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